

CLAIMS

1. Apparatus for use in the laying of elongate articles from a vessel, which apparatus includes a tower, tensioning means supported on the tower for paying out the elongate articles under laying tension, and a hold-off clamp, wherein the hold-off clamp is mounted independently of the tower on a trolley which can be moved into and out of alignment with the laying axis of the tower while supporting the elongate article under laying tension.
2. Apparatus as claimed in claim 1 wherein the trolley comprises at least one beam arranged to run on rails and which spans the laying axis.
3. Apparatus as claimed in claim 2 wherein the vessel is provided with two outriggers which extend in parallel relationship and are spaced either side of the laying axis to define a working space between them, the trolley comprising a beam which extends between two rails, one rail provided along each of the two outriggers.
4. Apparatus as claimed in claim 1, 2 or 3 wherein the trolley is further provided with a platform or work area.
5. Apparatus as claimed in any preceding claim wherein the hold-off clamp is moveable in two dimensions toward and away from the laying axis.
6. Apparatus as claimed in claim 5 wherein the clamp is operable to at least one side of the lay axis and at least one of forward and aft of the lay axis.
7. Apparatus as claimed in any preceding claim wherein a radius controller is located at an upper end of the main tower for supporting a continuous elongate article being diverted into said tensioning means.

8. Apparatus as claimed in any preceding claim further comprising an Abandonment and Recovery (A&R) crane arranged for use in the positioning of bulky loads within range of the hold off clamp.

5 9. A method of laying an elongate article from a vessel which includes a tower having a radius controller at its upper end and tensioning means on the tower for paying out said elongate article under tension, and a hold-off clamp mounted on a trolley at the foot of the tower for movement in and out of the laying axis of the ramp or tower, the method including fitting a connection module to the elongate article being laid by:

- 10 (a) positioning the hold-off clamp out of alignment with the laying axis of the ramp or tower;
- (b) locating and securing a connection in the hold-off clamp so that at least a connecting piece of the connection extends above the hold-off clamp;
- (c) positioning the hold-off clamp and connection in line with the laying axis of the tower;
- 15 (d) fixing the connection to the elongate article being laid; and
- (e) disengaging the hold-off clamp such that the weight of the connection module is supported by the elongate article.

20 10. A method of laying an elongate article from a vessel which includes a tower having a radius controller at its upper end, and tensioning means on the tower for paying out said elongate article under tension, and a hold-off clamp mounted on a trolley at the foot of the tower for movement in and out of the laying axis of the tower, the method including fitting a connection to the elongate article being laid by:

- 25 (a) positioning the hold-off clamp and securing it about the elongate article being laid, the elongate article ending (or being cut) at a position above the hold-off clamp so that the hold-off clamp supports the load of laid elongate article;
- (b) moving the hold-off clamp supporting the article out of alignment with the laying axis of the ramp or tower;
- 30 (c) positioning a connection module above the hold-off clamp; (d) fixing the connection module to the end of the elongate article; and (e) supporting the laid article and disengaging the hold-off clamp.

11. A method as claimed in claim 10 wherein the connection fitted to the elongate article is a tail end fitting and the method includes the further step of deploying the end of the elongate article to the seabed.

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12. A method as claimed in claim 10 wherein the connection fitted to the elongate article is a mid-line connection and the method may include the further steps of:

- (f) positioning the connection module in the hold-off clamp so that at least a connecting piece extends above the hold-off clamp;
- 10 (g) moving the hold-off clamp under the ramp so that it is in line with the laying axis of the tower;
- (h) fixing the connecting piece to the elongate article suspended in the tower; and
- (i) disengaging the hold-off clamp while paying out the elongate article via said tensioning means.